



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

647.7703

Job Sheet 168198-2



Part No: 647.7703

Job Qty: 1 ea

Part Name: Strut Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/13/17

Job Tracking No:

Due Date: 11/15/17

Created By: Chantal Lavoie

Type: Stock

Description:

Note: DWG REV A2 IPP REV:A 15.01.07 NEW ISSUE DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
150	Outsource	1 pcs		11/14/17	0.00	0.00	Outsource3		
160	Packaging	1 pcs		11/14/17	0.00	0.00	Packaging2		DAS
170	QC	1 pcs		11/14/17	0.00	0.00	QC5		38
180	SprayPaint	1 pcs		11/15/17	0.00	0.06	Spray Paint		AD NOV 20 2017
190	QC	1 pcs		11/15/17	0.00	0.00	QC14		DAS
200	Packaging	1 pcs		11/15/17	0.00	0.00	Packaging3		NOV 21 2017
210	QC21-SA	1 Ea		11/15/17	0.00	0.00	QC21		6

Part Op 150 - Issue P/O : 038335

Descriptions: 180 - PRIOR TO PRIME MASK THREAD AND PRIME AS PER DWG B138374

Job Allocations

Job Allocations could not be found.

Part Specifications

Specifications could not be found.

Plex 11/13/17 7:34 AM dart.lavoie.chantal

DART
AEROSPACE
S010368

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com



Strut Assembly

PART NO: 647.7703
Revision:
Operation: Outsource
Change No:

Mfg Date: 11/15/17
Job No: 168198

SPLIT - 2

send back 1PSS.

Work Order ID 163807

163807

Page 1

Monday, July 10, 2017 11:54:10 AM

Item ID: 647.7703

Revision ID:

Item Name: Strut Assembly

Start Date: 7/14/2017 Start Qty: 4.00

Required Date: 7/21/2017 Req'd Qty: 4.00

Reference:

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

SEP 26 2017

DAS
13
9-50*4*
4

Approvals:

Process Plan: DAS

Date: JUL 12 2017

Tooling:

Date:

Run Start *NR1*

QC: 21

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

647.7700

A2

110

Pick Kit

0.00

110

Packaging

Memo

0.08

Packaging

120

Weld per dwg A/R 4130 rod Batch: M127925 0.00

120

Large Fab

Memo

0.40

Large Fab

1- ASSEMBLE AND WELD AS PER DWG

***IMPORTANT DIMENSION IS 8.35" ***

(4)

D/K

17/08/18

130

QC9- Inspect visual per QSI004- Fusion Welds 0.00

130

QC

Memo

0.08

Quality Control

(4)

17.05.18

D

Work Order ID 163807

Monday, July 10, 2017 11:54:11 AM

163807

Page 2

Item ID: 647.7703

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Strut Assembly

Start Date: 7/14/2017 Start Qty: 4.00

4

Cust Item ID:

Required Date: 7/21/2017 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *140* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.08							
150 *150* Outsource3 Outsource process - Cad plate	Outsource process-Cadplate per QSI017 4.1.9.1 Memo Issue P/O : <u>37553</u> C of C is required PLEASE NOTE ON PO: CAD PLATE SHOULD NOT BE TOO THICK AROUND THREAD	0.00 480.00							
160 *160* Packaging Packaging	Receive & Inspect for Damage & Mat'l Certs Memo	0.00 0.08							

④ 17-05-13 10

4 AUG 25 2017 13 9-59

1 prs sent back
SEP 26 2017 13 9-59

4K Sp 17-9-11

Page 4

Quality Control

Picklist Print

Monday, July 10, 2017 11:54:08 AM

Page 1

Work Order ID: 163807

163807

Parent Item: 647.7703

647 770.3

Parent Item Name: Strut Assembly

Start Date: 7/14/2017

Required Date: 7/21/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 15.01.07 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
647.7712 *647 7712* Strut Tube		Manufactured	No			110	Each	67.0000	1	4			
				<u>Location</u>				<u>Loc Qty</u>					
				WA001				67					
				160392				67					
647.7713 *647 7713* Strut Thread		Manufactured	No			110	Each	16.0000	1	4			
				<u>Location</u>				<u>Loc Qty</u>					
				WA002				16					
				160398				16					
647.7714 *647 7714* Strut Tube		Manufactured	No			110	Each	44.0000	1	4			
				<u>Location</u>				<u>Loc Qty</u>					
				WA001				44					
				159794				4					
				160715				40					

**

DYC 17/08/18

**

DYC 17/08/18

**

DYC 17/08/18



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05397

SHEET 1 OF 1

DWG NO. 647.7700

REV: A

PREPARED
BY

T. CROSS

DATE: 05/02/16

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: STRUT ASSY

APPROVED BY:

ENGR

MFG

QC

EFF:

CURRENT ORDER

REASON: REVISED DIMENSION

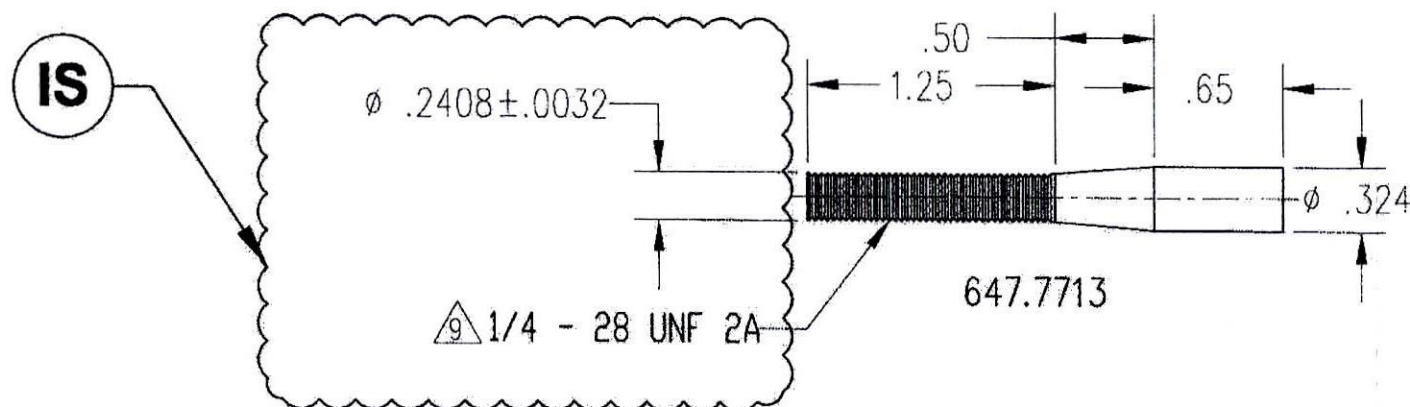
ECR:

16-028

ACTION LIST:

1.

SHEET 2, ZONE D4 IS:



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 163807 MJS
170712

DOCUMENTS EFFECTED:

☐ PATTERN

☐ MDL

☐ INSTALL INSTRU

☐ ICA

☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES

☒ NO



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

ENGINEERING CHANGE NOTICE NO.

05110

SHEET 1 OF 1

DWG NO. 647.7700

REV: A

PREPARED
BY

A. QUAN

DATE: 08/21/15

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: STRUT ASSY

APPROVED BY:

ENGR

MFG

QC

EFF.

CURRENT ORDER

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: REVISED FINISH CALLOUT AS PER ECR 15-209

SHEET 1, NOTES IS:

ACTION: UPDATE MO & WO

NOTES:

- 1 MATERIAL: 4130 STEEL PER AMS-T-6736, .50" OD, .083" WALL THK.
- 2 MATERIAL: 4130 STEEL PER AMS-T-6736, .375" OD, .075" WALL THK.
- 3 MATERIAL: 4130 STEEL PER AMS-T-6736, .324" OD.
- 4 FINISH: PRIME IAW MIL-P-2337J TYPE I CLASS N; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES
6. IDENTIFY IAW MPP-120.
- 7 WELD IAW MIL-STD-2219. TIG WELD WITH FILLER ROD
- 8 FINISH: CAD PLATE IAW QQ-P-416F CLASS I TYPE II
- 9 MASK THREAD PRIOR TO FINISH

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED: ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM					
CHANGE CATEGORY ☐ MAJOR ☐ MINOR					
DER REVIEW REQUIRED ☐ YES ☐ NO					

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NOTES:

- △ MATERIAL: 4130 STEEL PER AMS-T-6736, .50" OD, .083" WALL THK.
- △ MATERIAL: 4130 STEEL PER AMS-T-6736, .375" OD, .075" WALL THK.
- △ MATERIAL: 4130 STEEL PER AMS-T-6736, .324" OD.
- △ FINISH: PRIME IAW MIL-P-2337J TYPE I CLASS N; 1-2 MIL MAX
- 5. DEBURR AND BREAK ALL SHARP EDGES
- 6. IDENTIFY IAW MPP-120.
- △ WELD IAW MIL-STD-2219. TIG WELD WITH FILLER ROD
- △ FINISH: CAD PLATE IAW MIL-C-5541 CLASS 1A
- △ MASK THREAD PRIOR TO FINISH

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION: P10		AJC
2	INITIAL RELEASE	12/02/08	P. BRAVO
3	INCORPORATED ECN 04741	11/13/14	P. BRAVO

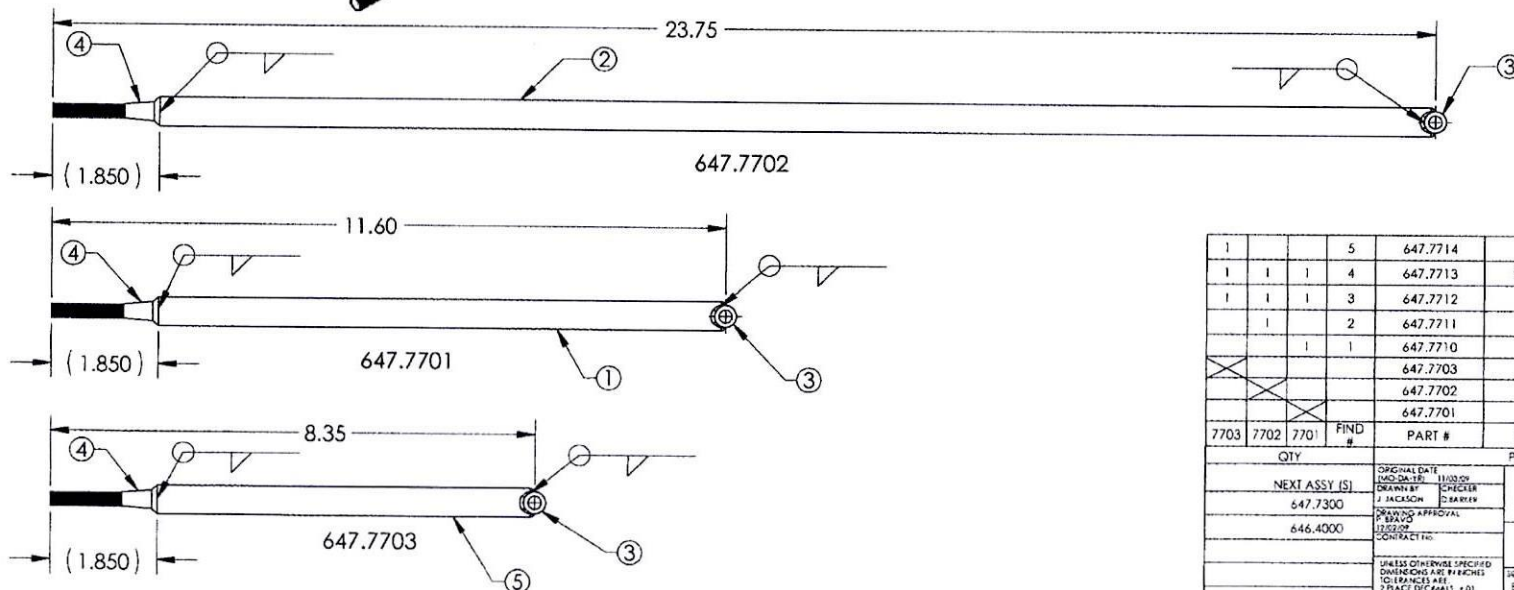
647.7701

647.7703

647.7702

UNINCORPORATED ECN(s)

05110, 05397,



1			5	647.7714	STRUT TUBE	△	
1	1	1	4	647.7713	STRUT THREAD	△	△
1	1	1	3	647.7712	STRUT TUBE	△	
	1		2	647.7711	STRUT TUBE	△	
		1	1	647.7710	STRUT TUBE	△	
				647.7703	STRUT ASSY		△△
				647.7702	STRUT ASSY		△△
				647.7701	STRUT ASSY		△△
7703	7702	7701	FIND #	PART #	DESCRIPTION	MAT L	SPEC.
QTY				PARTS LIST			
NEXT ASSY (S)				ORIGINAL DATE			
647.7300				11/03/08			
646.4000				DRAWN BY			
				CHECKED			
				DATE			
				DRAWING APPROVAL			
				P. BRAVO			
				CONTRACT NO.			
				UNLESS OTHERWISE SPECIFIED			
				DIMENSIONS ARE IN INCHES			
				TOLERANCES ARE			
				2 PLACE DECIMALS ±.01			
				3 PLACE DECIMALS ±.005			
				ANGLES ±.5°			
				SCALE NONE			
				SHEET 1 OF 2			

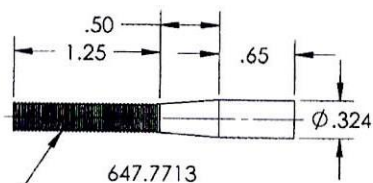
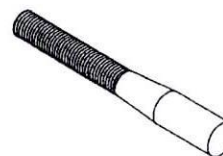
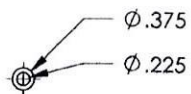
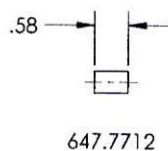
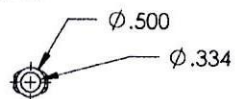
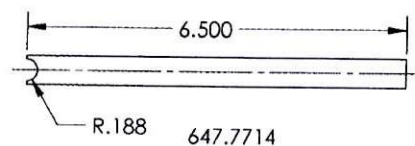
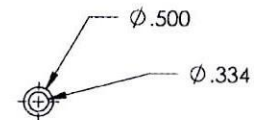
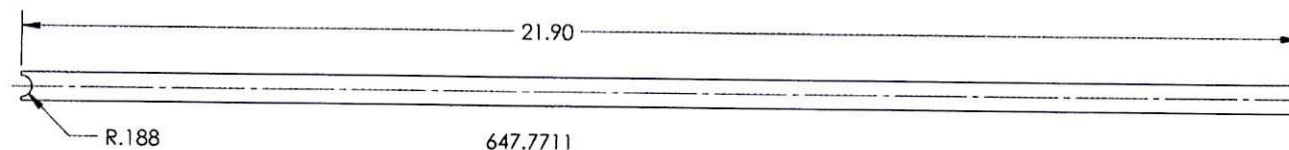
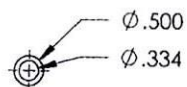
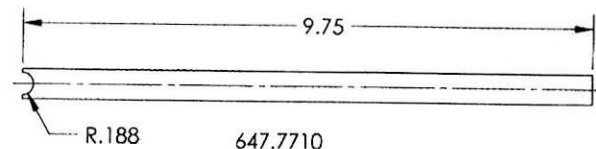
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760) 724-5300

STRUT ASSY

647.7700

REV. A

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



$\triangle$ 1/4 - 28 THREAD

ORIGINAL DATE 11/10/09		APICAL INDUSTRIES	
DRAWN BY J. JACKSON		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA, 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BRAYO		STRUT ASSY	
CONTRACT NO.		647.7700	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ±.01 ANGLES ± .5°		REV. A	REV. A
SCALE: NONE		SHEET 2 OF 2	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO37553**

Purchase Order Date 8/25/2017

PO Print Date 8/28/2017

Page Number 1 of 2

Order From :

GROUP ALTECH
2455 HALPERN

ST LAURENT, MONTREAL H4S 1N9

VC-ALT01

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

REVISED

Contact Name
Vendor Phone 514-335-3666

Ship To Contact
Ship To Phone
Ship Via:
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FOB Origin

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	163807	647.7703 STRUT	9/7/2017 Yes 9/7/2017		4.00	\$12.50	\$50.00
CAD PLATE IAW QQ-P-416F CLASS I TYPE II note: cad plate should not be too thick around tread							
<i>SPR-9-11</i>							
Line Total:							\$50.00
2	164658	647.7703 STRUT	9/7/2017 Yes 9/7/2017		4.00	\$12.50	\$50.00
CAD PLATE IAW QQ-P-416F CLASS I TYPE II note: cad plate should not be too thick around tread							
Line Total:							\$50.00
3	164659	647.7703 STRUT	9/7/2017 Yes 9/7/2017		4.00	\$12.50	\$50.00
CAD PLATE IAW QQ-P-416F CLASS I TYPE II note: cad plate should not be too thick around tread							

Note:

8/28/2017



Certificat de Conformité / Certificate of Compliance



2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Bon de Livraison / Packing Slip

002174- 1

Livré à / Ship to

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 Tel.: 613-632-5200 Fax.:

Client / Customer:

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Courier / Acc. No.	Bon de commande Client Customer Purchase Order No.				
06-Sep-2017		Ross Montieth		37553				
#Ligne Line#	No. de Série / # Pièce Part Number /Line Item Details Job # / Ref #	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Quantités / Quantities Qté NC/ NC Qty	Qté Scrap/	À venir / Back Order
1	647.7703 Rev.	647.7703 01 -CAD YELLOW 500 [CADMIUM YELLOW 500]	CADMIUM CH	12	12	0	0	0

SPN-9-11.
(4x)

SPN-9-11.
 (4x)

Notes Additionnelles / Additional Notes

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.

QA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date: _____		Step #: _____		QTY Effective: _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				5/17/09/22 Completed By	
Found Qty of 1 Pcs with CAD plating Rough. Re. Supplier.				A contact Supplier + Return Part to be reworked re plating * Reinspected + Recieve				Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval 5/17/09/22	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐			



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO038335

Supplier: GRO002-VC
Group Altech
2455 Halpern
St Laurent
QC
H4S 1N9 Canada
Phone: 514-335-3666
Fax: 514-335-3868

PO No: PO038335
PO Date: 11/13/17
Due Date:
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	168199	647.7703	-	Strut Assembly Issue P/O :		Firmed		2 pcs	0 pcs 2x	2 pcs	\$0.001/pcs	\$0.00
Line Item Note re-work												
2	168198	647.7703	-	Strut Assembly Issue P/O :		Firmed		1 pcs	0 pcs 1x	1 pcs	\$0.001/pcs	\$0.00
Line Item Note re-work												
Grand Total:											\$0.00	

Order Notes

DWG REV A2 IPP REV:A 15.01.07 NEW ISSUE DD VERF:JLM

DWG REV A2 IPP REV:A 15.01.07 NEW ISSUE DD VERF:JLM

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 11/13/17 7:59 AM dart.lavoie.chantal

DAS
38
9-85



2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Certificat de Conformité / Certificate of Compliance



Bon de Livraison / Packing Slip

003015- 1

Livré à / Ship to

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA

Tel.: 613-632-5200 Fax.:

Client / Customer:

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Carrier / Acc. No.	Bon de commande Client Customer Purchase Order No.				
03-Oct-2017		Ross Montieth		PO37553				
Quantités / Quantities								
#Ligne Line#	No. de Série / # Pièce Part Number / Line Item Details	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Qté NC/ NC Qty	Qté Scrap/	À venir/ Back Order
1	647.7703 Rev.	647.7703 01 -CAD YELLOW 500 [CADMIUM YELLOW 500]	CADMIUM	2	2	0	0	0
			CH					
2	647.7703 Rev.	647.7703 01 -CAD YELLOW 500 [CADMIUM YELLOW 500]	CADMIUM	1	1	0	0	0
			CH					

SP 17-11-14

DAS
38
9-88

Notes Additionnelles / Additional Notes

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.